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Athens, November 22, 2000

To The Commissioner of Patents and Trademarks  
WASHINGTON, DC 20231  
United States of America

Re : serial Number 09/331,805  
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The Official Action PTOL-326 dated 14, September 2000 (paper number 3), has been carefully studied and taken into consideration.

Attached to the present you will find

- New claims 20-34 to replace claims 1 to 19 currently in file.
- New description ( 9 sheets) to replace the description currently in file.
- Annex I showing the differences between the claims 20-34 and 1 to 19.
- Annex II showing the differences between the description filed herewith and the description as in the International Publication.
- Applicant's Notes

Herewith, I would like to ask for the continuation of the examination on the basis of the following application documents:

- specification pages 1 to 9, as filed herewith
- claims 20 to 34, as filed herewith,
- abstract as currently in file
- sheets with drawings as currently in file.

The applicant believes that a patent may be granted on the basis of the present documents. Should the examiner has any further objections the applicant is ready to take the necessary steps in order to bring the application in conformity with the requirements of the US legislation.

Finally I would like to let you know, that if in your opinion an interview is considered helpful I am prepared to come to the USTPO to discuss my application.

Best Regards

KONSTANTINIDIS (applicant)



## APPLICANT'S NOTES

According to the Official Action (paper 3) claims 1 to 19 contain twice claim number 1. In order to remove any ambiguity the applicant deletes all claims 1 to 19 and files herewith a new set of claims ~~30~~<sup>2</sup> to 34. For completeness the applicant respectfully notes that the claims originally filed were claims 1 to 19 with claims 2 to 17 as published in the International Publication and claims 1, 18, 19 as appear in the Annex of the International Examination Report.

Annex 1 shows the differences between claims 20 to 34 on one hand and claims 1 to 17 as published in the international publication and 18 and 19 as in the Annex of the International Preliminary Examination Report on the other (deletions are marked in red and additions in blue - while the renumbering is not shown). In order to facilitate the examination you may find below a list indicating the relevance between claims 20 - 34 and 1 to 19.

- Claim 20 corresponds to claim 1 amended to overcome the objections raised by the examiner.
- Claim 21 corresponds to claim 2.
- Claim 22 corresponds to claim 3 amended to overcome the objections raised by the examiner.
- Claims 23 and 24 correspond to claims 4 and 6 respectively amended so, that they are dependent only from independent claim 20, so that they overcome the objection raised by the examiner.
- Claim 25 correspond to claim 7 amended to overcome the objections raised by the examiner.
- Claim 26 to 30 correspond to claims 8 to 12 respectively, amended so, that they are dependent only from independent claim 20, so that they overcome the objection raised by the examiner.
- Claim 31 corresponds to claim 16.
- Claim 32 corresponds to claim 17 amended to overcome the objections raised by the examiner.
- Claim 33 corresponds to claim 18 amended to overcome the objections raised by the examiner.
- Claim 34 corresponds to claim 19 amended to overcome the objections raised by the examiner.

Claims 20, 33 and 34 define that the spiral has a continuous cross-section. The continuity of the cross-section of the windings is derived unambiguously from the description of the invention and in particular from lines 9 to 11 on page 6 of the IP.

Claim Objections - Multiple dependent claims

Claims 20 to 34 do not contain any multiple dependent claim depending from another multiple dependent claim. Thus the objection under 37 CRF 1.75(c) is removed.

Claim rejections - 35 USC §112

It is believed that claims 20 to 34 overcome the objections raised under 35 USC §112. However it is respectfully submitted that the references to "the longitudinal direction" and "the projections" (1<sup>st</sup> and 4<sup>th</sup> in the list of the Official Action) do not cause any ambiguity and do not fail to particularly point out and distinctly claim the subject matter for which protection is sought:

- a) The skilled person will clearly recognize that any spiral has a longitudinal direction, and the line along which this direction is defined. Thus it is believed that the reference to the longitudinal direction may remain in claim 20. However if the examiner is in the opinion that this reference causes obscureness in the claim the applicant accepts to remove the words " the longitudinal direction of" from claim 20.
- b) Each geometric scheme has a projection on a plane and the skilled person will obviously recognize it. Thus it is believed that the reference to the projection of a winding on a specific plane is a clear definition and the skilled man will unambiguously recognize it. The applicant believes that any attempt to re-draft the claim will result in unnecessary repetitions. However he is prepared to consider any other wording, if the examiner insists in the objection.

Claim rejections - 35 USC §102(b)

Claim 20 of the application under consideration refers to a stirrup for reinforcing load bearing elements comprising a plurality of consecutive windings disposed along the longitudinal direction of the stirrup and having

a continuous cross-section, so that the stirrup has a spiral form, whereby the windings of the stirrup form a plurality of discrete cages to house the main reinforcement rods of the load bearing element.

The spiral stirrups disclosed in EP-A-0 152 397 (thereafter D1) do not comprise a plurality of discrete cages. In particular the combined structure of figures 4, 5 and 7 to 10 of D1, which is constructed by laterally inserting one simple stirrup into another, does not constitute a spiral stirrup with consecutive windings, a continuous cross-section and with more than one cage as the stirrup of claim 20 of the application. Such a construction comprises distinct spiral stirrups forming one cage each. Thus the stirrup of claim 20 is new when compared to the stirrups of D1.

Further the stirrup of claim 20 involves an inventive-step: Document D1, which is considered to comprise the nearest state of the art discloses a stirrup for reinforcing load bearing elements consisting of a plurality of consecutive windings disposed along the longitudinal direction of the stirrup, so that the stirrup has a spiral form (see for example figure 1 of D1). An object of the invention under examination is a stirrup for combined reinforcement meshes. Until today such stirrups are made by combining simple, plane and orthogonal stirrups as those shown in figure 1 of the application under examination, so as to create more complicated forms such as those shown in figure 2 of the same application (see also International Publication page 1, lines 22 - 26). In accordance with independent claim 20, the solution to the problem lies in producing a spiral stirrup with more than one cage. Such stirrup is neither explicitly nor implicitly discussed in the prior art cited. Further, the advantages of the stirrup of claim 20 in comparison to the known stirrups are discussed in the International Publication and in particular on page 3 lines 14 to 27.

The problem of stirrups for combined reinforcement meshes is mentioned in D1. However the solution proposed therein is contrary to the teaching of the invention under consideration. According to D1, page 5, 3rd paragraph, it is proposed to insert a spiral stirrup laterally within another spiral stirrup, so as to produce a stirrup of more complicated shape (see also figures 4, 5, 7-

10 of D1). However, as mentioned also above when referring to novelty, the combination of stirrups of figures 4, 5 and 7 to 10 of D1, does not constitute a spiral stirrup with consecutive windings, a continuous cross-section and more than one cage as the stirrup of claim 20 of the application.

Thus the subject matter of claim 20 involves an inventive-step.

Claim 33 defines a method for reinforcing load bearing elements using spiral stirrups with a plurality of cages. For the reasons mentioned above when referring to claim 20, such a stirrup is new and inventive and therefore the method of claim 33 is new and involves an inventive step.

Claim 34 defines a load bearing element comprising stirrups with a plurality of cages. For the reasons mentioned above when referring to claim 20, such a stirrup is new and inventive and therefore the subject-matter of claim 34 is new and involves an inventive step.

#### Claim rejections – 35 USC §103

Claims 21 to 32 are dependent from claim 20 and therefore they are considered to define new and inventive subject-matter (see section above).

#### Prior Art

- a) *US 3,882,905 (James)*: The document discloses a reinforcing cage constructed by employing coils with spaced convolutions. However these coils, which correspond to stirrups as well as the reinforcing cage do not comprise a plurality of discrete cages, but one single cage.
- b) *US 4,150, 475 (Bondpers et al)*: The document discloses a method for producing a reinforcing unit using a helical reinforcing element 5, shown in figure 5. However the element 5, which corresponds to a stirrup does not comprise a plurality of discrete cages, but one single cage.

Thus the prior art disclosed in James and Bondpers et al neither shows a stirrup comprising a plurality of discrete cages, nor provides any teaching to the skilled person towards such a stirrup construction.

### Drawings

It appears to the applicant that the Notice of the Draftsperson does not contain any objections. It is further acknowledged that there is a mark in box A, according to which the drawings were approved by the Draftsperson.

### Specification

The Description of the invention has been redrafted to meet the requirements of CFR 1.52(a) and (b). The applicant respectfully submitted that no fresh subject-matter has been introduced in the description filed herewith. In order to facilitate the procedure Annex II presents the published application with the insertions in blue and the deletions in red and in brackets. Should the examiner has any further objection the applicant is prepared to make the necessary amendments.